



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/803,635

03/17/2004

Daryl E. Anderson

200309206-1

5366

22879 7590 07/05/2007

HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER

AMADIZ, RODNEY

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

07/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/803,635	<b>Applicant(s)</b> ANDERSON ET AL.	
	<b>Examiner</b> Rodney Amadiz	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 18-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 18-31 is/are rejected.
- 7) ☒ Claim(s) 14-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/17/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

*1-5, 12, 13, 18-20, 27, + 31*

3. Claims ~~1-3~~ are rejected under 35 U.S.C. 102(b) as being anticipated by Taira et al. (U.S. Patent 6,014,193—hereinafter “Taira”).

As to Claim 1, Taira teaches a display device comprising a plurality of pixels (**Fig. 16, Reference Number 21a**), each pixel comprising: an optical part (**21a**); a digital-to-analog converter (**51**) for driving said optical part, said digital to analog converter physically co-located with said optical part (**See Fig. 16**); and driving circuitry (**52, 53 and 57**) for providing digital signals simultaneously to respective digital-to-analog converters (**51**) in said plurality of pixels (**21a**).

As to Claim 2, Taira teaches that said driving circuitry comprises a serial shifter (**53 and 57**) for accepting said digital signals into each said pixel.

As to Claim 3, Taira teaches that said serial shifter is physically co-located with said optical part (**See Fig. 16**).

As to **Claim 4**, Taira teaches a parallel data latch **(52)** for accepting said digital signals from said serial shifter.

As to **Claim 5**, Taira teaches that said parallel data latch is physically co-located with said optical part **(See Fig. 16)**.

As to **Claim 12**, Taira teaches a display device comprising a plurality of pixels **(21a)**, each pixel in the display comprising: a serial shifter **(53 and 57)** that accepts a serial bit stream **(Y/C)** and has an n-bit wide output **(note output to 52)**; an n-bit wide data latch **(52)** that latches data received from the output of the serial shifter **(See Fig. 16)**; a digital to analog converter **(51)** to which output of the data latch is applied **(See Fig. 16)**; and an optical part **(21a)** driven by the digital to analog converter.

As to **Claim 13**, Taira teaches that each pixel includes a plurality of optical parts **(See Fig. 4, note element 21a comprised of optical part R, G and G)**.

As to **Claim 18**, Taira teaches that groups in the plurality of pixels comprise interconnected serial shifters to serially receive a data set **(See Fig. 16 and note that 57 leads into the next row of pixels)**.

As to **Claim 19**, Taira teaches a global clock line **(note CLK above 53)** to control shifting of data through interconnected serial shifters of groups of pixels in the plurality of pixels.

As to **Claim 20**, Taira teaches a global load line **(note ENA above 53)** to control latching of data by data latches in the plurality of pixels.

As to **Claim 27**, Taira teaches that the outputs of data latches (52) in the plurality of pixels (21a) are applied simultaneously to their analog to digital converters (51) in accordance with a global load signal (*note ENA above 53*).

As to **Claim 31**, Taira teaches a display device for displaying a visual image including a plurality of pixels (*Fig. 16, 21a*), comprising: means for shifting data to respective pixels (53 and 57); means for holding (52) said data in said respective pixels; and respective digital-to-analog converters (51) in said respective pixels for simultaneously converting said data to respective analog signals.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taira.

As to **Claim 28**, Taira teaches a method for driving a display device, the method comprising the steps of: shifting digital data (Y/C) serially into serial shifters (53 and 57) of a group of pixels (21a) of the display through the serial shifters (53 and 57) of the group; simultaneously latching data from the serial shifters into corresponding data latches (52) in each of the group of pixels; simultaneously converting data latched into data latches of the group of pixels into analog signals for driving optical parts in each of

Art Unit: 2629

the group of pixels **(51)**; and producing a display by optical parts **(see Fig. 4, and note that 21a comprises R, G and B optical parts)** in the group of pixels in accordance with the analog signals. Taira however, fails to teach each serial shifter in the group including a byte of data. However, the specification shows no apparent benefits for the serial shifter having exactly one byte of data. Therefore, having one byte of data per serial shifter is clearly a design choice based on the specific requirement of the claim. Furthermore, it would have been obvious to a person of ordinary skill in the art to include one byte of data in the serial shifter and latch taught by Taira since using one byte is well known in the art and compatible with other devices.

As to **Claim 29**, Taira teaches that said step of shifting comprises providing a sequence of global clock signals **(note CLK above 53)** to the serial shifters **(53 and 57)**; and advancing a data set of the digital data by one bit through the serial shifters with each cycle in the sequence of global clock signals **(refer to claim 28)**.

As to **Claim 30**, Taira teaches that said step of simultaneously latching comprises: providing a global load signal **(note ENA above 53)** to each data latch **(52)**, upon receiving said global load signal, loading a byte of data into each data latch simultaneously from a respective serial shifter **(53 and 57)** while outputting a previously held data byte from each data latch **(See Fig. 16)**.

6. Claims 6-11, 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taira in view of McKnight (U.S. Patent 5,959,598).

As to **Claims 6, 7, 21 and 22**, Taira teaches the optical part to be liquid crystal (21a). Taira fails to teach that said optical part comprises a light emitter and that the light emitter comprises a light emitting diode. Examiner cites McKnight to teach a display device having driving circuitry for each pixel wherein the optical part comprises a light emitter and that the light emitter comprises a light emitting diode (***Col. 12, lines 22-33***). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate a light emitter having a light emitting diode as taught by McKnight in the display device taught by Taira in order to provide a display that is more durable and last longer.

As to **Claims 9-11 and 24-26**, Taira teaches the optical part to be liquid crystal (21a). Taira fails to teach said optical part comprising a reflector and the reflector comprising either a digital micro-mirror or a diffractive light device. Examiner cites McKnight to teach a display device having driving circuitry for each pixel wherein the optical part comprises a reflector and the reflector comprising either a digital micro-mirror or a diffractive light device (***Col. 1, lines 34-43***). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate a reflector and the reflector comprising either a digital micro-mirror or a diffractive light device as taught by McKnight in the display device taught by Taira in order to provide a small fast high resolution display (***McKnight—Col. 1, lines 34-43***).

As to **Claims 8 and 23**, Taira, as modified by McKnight, teaches that the optical part is a light emitting diode (***McKnight—Col. 12, lines 22-33***). Taira, as modified by McKnight, however, fails to teach that said light emitter comprises an organic light

Art Unit: 2629

emitting diode. Examiner takes Official Notice that using an organic light emitting diode in a display device is well known in the art. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate an OLED in the display device taught by Taira, as modified by McKnight, in order to produce a thinner, lighter, brighter and more flexible display.

### ***Allowable Subject Matter***

7. Claims 14-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Akiyama et al.	U.S. Patent 5,977,940
Hirota et al.	U.S. Patent 7,038,641
Lin et al.	U.S. Patent 7,068,251
Huang	U.S. Patent 7,170,485
Koyama et al.	U.S. Patent 7,22,339



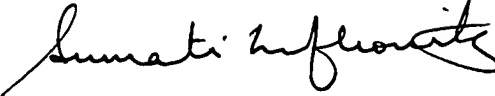
***Inquiries***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney Amadiz whose telephone number is (571) 272-7762. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

R.A.  
R.A.  
6/25/07  
Division 2629

  
SUMATI LEFKOWITZ  
SUPERVISORY PATENT EXAMINER